Cactus®

User Manual

Wireless Flash RF60

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1. Getting to Know your RF60

Thank you for purchasing the Cactus Wireless Flash RF60. We trust that you will enjoy the benefits of your new wireless portable flash. The RF60 is unique among other flashes available in market. With a built-in commander and receiver, it not only receives wireless signals but also functions as a controller to command other RF60s. The possibilities are endless!

Please take a while to explore all the features in your new RF60:

- Built-in wireless commander and receiver
- Remote control of power and zoom levels
- Group control up to four groups with configurable Group Alias
- Optical Slave with delay feature
- High power up to Guide Number of 56 meters
- Compatible with Cactus V6 Wireless Flash Transceiver
- Multi-flash feature
- HSS Sympathy mode provides HSS support when working with TTL flashes

2. Caution and Warnings

Before using the product, read the following precautions to ensure correct and safe use and to help prevent damage of the Cactus RF60.

1. Turn OFF all your equipments (Cactus units, cameras, etc.) before changing batteries or making connection.
2. Remove batteries and switch off the flash when it is not in use.
3. Use only the batteries specified in this instruction manual.
4. Do not permanently store the product in a high temperature environment (i.e., under strong direct sunlight, near cooking stoves or oven).
5. The flash should not be submerged in liquid or exposed to heavy rain unless it is properly protected.
6. Do not operate the device in the presence of flammable gases or fumes.
7. Do not fire the flash directly into the eyes of someone at close range.
8. Do not fire the flash directly at the driver of a moving car.

3. Major Specifications

- Guide Number (ISO 100):

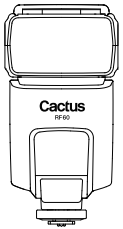
Zoom (mm)	24	28	35	50	70	80	105
GN (meter)	33	34	38	45	51	54	56
GN (feet)	108	112	124	147	168	177	183

- Motor zooms: 24mm – 28mm – 35mm – 50mm – 70mm – 80mm – 105mm
- Power levels (22 in total):

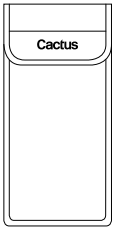
1/1	1/2	1/4	1/8	1/16	1/32	1/64	1/128
	1/2+0.3	1/4+0.3	1/8+0.3	1/16+0.3	1/32+0.3	1/64+0.3	1/128+0.3
	1/2+0.7	1/4+0.7	1/8+0.7	1/16+0.7	1/32+0.7	1/64+0.7	1/128+0.7

- Flash durations: 1/300s – 1/20,000s
- Modes: Local (L), Master (M) and Slave (S)
- Working radio frequency: 2.4GHz
- Number of channels: 16
- Number of groups: 4
- Maximum wireless effective distance: 100 meters / 328 feet
- Built-in optical slave mode: S1 (straight triggering) / S2 (pre-flash ignored triggering)
- Power input: requires 4 AA batteries (LR6 alkaline or Ni-MH), rechargeable Ni-MH for best performance
- Flash count per battery cycle: 100 (at 1/1 power) / 2000 (at 1/128 power)
- Minimum Recycle Time: 0.1-5.0 seconds (with alkaline batteries) / 0.1-3.0 seconds (with Sanyo Eneloop)
- Color temperature: 5600k +/- 200k
- Operating temperature: -20°C to +50°C
- Dimensions: 205 x 83 x 61mm
- Net weight: 390g

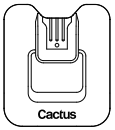
4. Package Content



Cactus Flash RF60



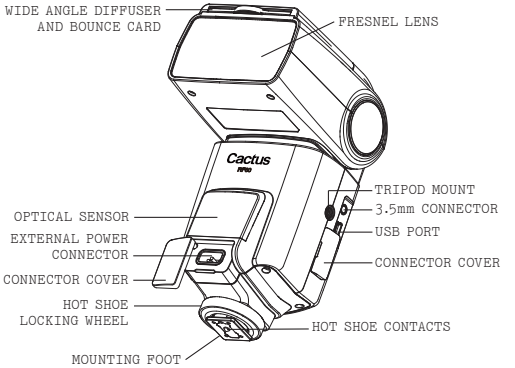
Cactus Flash
Carrying Case FC-3

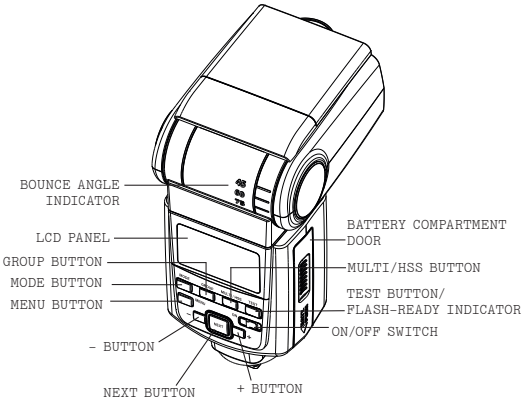


Cactus Flash Stand FS-2

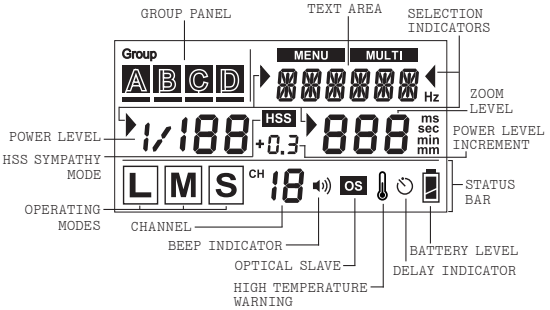
User Manual

5. Nomenclature



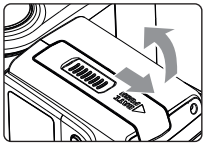


6. LCD Panel

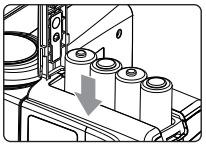


7. Getting Started

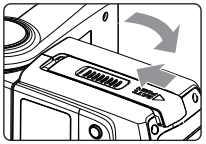
7.1 Inserting Batteries



1. Using your thumb, press on the battery compartment door and slide it open in the direction shown by the arrow.



2. Install the batteries.
   Make sure the positive (+) and negative (–) battery contacts are properly oriented as shown in the compartment.



3. Slide the battery compartment door in the direction shown by the arrow to close it.

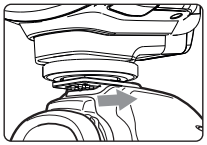
Caution:

1. Use a new set of AA batteries of the same brand and type. When replacing batteries, replace all four at the same time.
2. AA-sized alkaline, Ni-HM, or lithium batteries can be used. Use only one type of batteries at a time. Do not mix battery types.
3. If you change batteries after firing many flashes continuously, be aware that the batteries may be hot.
4. For alkaline or lithium battery, the battery level indicator on the LCD will show ▯ when around 50% of the battery power has been consumed, and the indicator will

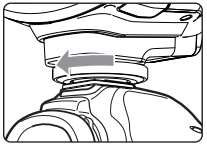
blink when the flash does not have enough power to fire. Replace batteries immediately when you see the blinking signal. The indicator is not applicable to Ni-MH battery.

5. When the flash is not in use, remove the batteries to prevent possible damages from battery corrosion.

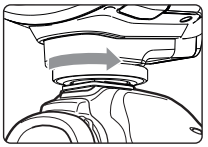
7.2 Attaching to and detaching from the Camera



1. To attach the flash, slide the flash's hot shoe mounting foot all the way into camera's hot shoe.

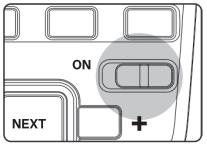


2. To secure the flash, rotate the locking wheel on the mounting foot to the left until it locks.

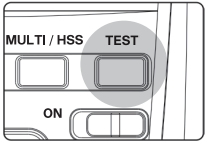


3. To detach the flash, rotate the locking wheel on the mounting foot to the right until it is loosened.

7.3 Turning the Flash on



1. Switch the On/Off Switch to ON, the flash starts charging.



2. Check that the flash is ready.

- The flash-ready indicator blinks in red, indicating that the flash is ready for quick flash (see Section 12.3).

- Once fully charged, the flash-ready indicator stays red and the flash is ready to give full power output.
- Press the TEST button to fire a test flash.

Caution:

1. When the flash is switched ON but not used, after a certain period of time, the flash's power turns off automatically. However, the flash still consumes power and batteries discharge over a long period of time may damage the battery contacts of the flash. Therefore, **shut off the flash power if the flash is not in use.**
2. If you fire more than 20 continuous flashes at full power in short intervals, the inner overheating prevention function may be activated to prolong the recycling time to about 8–20 seconds. The temperature warning signal will appear in the status bar of the LCD screen. If this occurs, allow a rest time of about 15 minutes, and the flash will then return to normal.

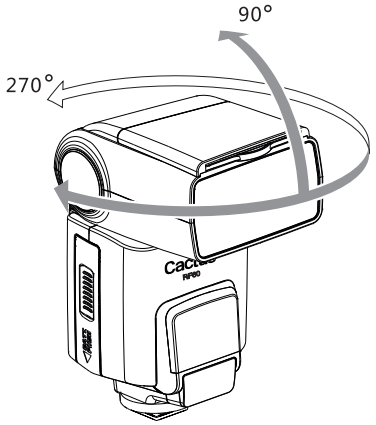
7.4 Adjusting Flash Head

By pointing the flash towards a wall or ceiling, the flash will bounce off the surface before illuminating the subject. This will soften the shadows

behind the subject for a more natural-looking shot. This is called a bounce flash.

Tip: Using bounce flash to avoid hitting the subject with direct flash light. Hence, make sure it is sufficiently angled-away from the subject.

The flash head of the RF60 can be tilted up to a vertical angle of 90°, with click stops at 30°, 60°, and 75°. Horizontally, it can be rotated up to 180° to the right and 90° to the left, with click stops at 30°, 60°, 90°, 120°, 150° (right) and 30°, 60° (left).

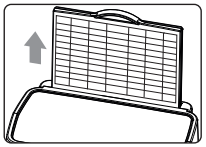


7.5 Bounce Card and Wide Angle Diffuser

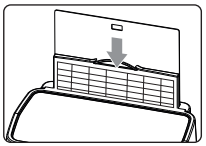
There is a bounce card and wide angle diffuser set built in the RF60. The bounce card and wide angle diffuser can be used separately or at the same time.

> **Tip:** The bounce card is useful in bounce flash applications to direct some of the light towards the subject in order to create catch lights and/or soften strong shadows from the bounced light.

Using the Bounce Card

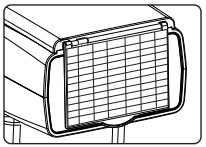


1. Point the flash head upward by 90°.
2. Pull out the wide angle diffuser, the bounce card will come out at the same time.



3. Push the wide angle diffuser back in; the bounce card will be ready for use.

Using the Wide Angle Diffuser



1. Pull out the wide angle diffuser and place it over the flash head as shown. The bounce card will come out at the same time.
2. Push the bounce card back in. The flash will illuminate at 15mm coverage.

7.6 Choosing the Operating Mode

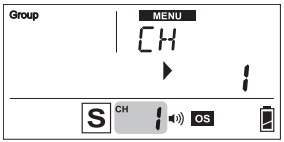
There are 3 operating modes in the RF60, namely Local, Master and Slave. Upon switching on the RF60, press the MODE button to choose the appropriate mode. The mode indicator turns in the following sequence:

Local **L** → Master **M** → Slave **S**

Modes	Where to place the RF60?	With wireless control?
L	on camera	X
M	on camera	√
S	off camera	√

7.7 Setting Channel

When RF60 is in Master or Slave mode, they need to communicate in the same RF wireless channel with each other.



To set the channel, press MENU. Use the + or − button to select the RF channel. Press MENU to go back to the main screen. The selected channel will be shown on the LCD panel.

7.8 Natvigating the Menu MENU

There are a number of configurable menu options on the RF60.

To change a menu option:

1. Press the MENU button to access the first menu item.
2. Press the NEXT button to change the menu subject in the sequence.
3. Press the + or − button to go through the options of a menu item. The configuration of the menu item will change immediately.
4. Press the MENU button to leave and go back to the main screen, or press the NEXT button to change the menu to the next item in the sequence.

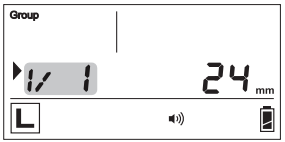
Menu item and corresponding options	Text shown on LCD	Applicable modes		
		L	M	S
RF Channel └ 1–16	CH └ 1–16		√	√
Delay Timer └ 0–999 ms	DELAY └ 0–999 ms	√	√	√
Optical Slave ├ Off ├ S1: Straight Triggering └ S2: Pre-flash Ignored	OPT SL ├ OFF ├ S1(FIRST) └ S2(MAIN)	√	√	√
Quick Flash ├ Off └ On	QCK FL ├ OFF └ ON	√	√	√
Beep Feedback ├ Off ├ Fn1: Quick Flash ├ Fn2: Full Charge └ Fn3: Insufficient Power Warning	BEEP ├ OFF ├ Fn1(QCK FL) ├ Fn2(READY) └ Fn3(WARN)	√	√	√
Sleep Timer ├ Off ├ 3 min ├ 5 min ├ 15 min ├ 30 min └ 60 min	SLEEP ├ OFF ├ 3 min ├ 5 min ├ 15 min ├ 30 min └ 60 min	√	√	√
LCD Backlight ├ Off ├ 5 sec ├ 15 sec └ Continuous	BK LGT ├ OFF ├ 5 sec ├ 15 sec └ ON	√	√	√

8. On-camera Operation: Local Mode [L]

Set up the RF60 in Local mode when you work with one flash on the camera's hot shoe.

In the main screen, the power level is shown on the left while the zoom level is shown on the right. The selection indicator ▶ will be shown at either the power level or zoom level. Press the [NEXT] button to switch the selection indicator in order to adjust a setting of an item.

8.1 Adjusting the Power Level

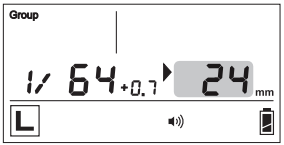


To adjust the power level, press [NEXT] until the selection indicator ▶ is pointing to the power ratio value (i.e., the left figure in the central row), press [+] to increase or [−] to decrease the power level.

The power levels available for adjustment are:

1/1	1/2	1/4	1/8	1/16	1/32	1/64	1/128
	1/2+0.3	1/4+0.3	1/8+0.3	1/16+0.3	1/32+0.3	1/64+0.3	1/128+0.3
	1/2+0.7	1/4+0.7	1/8+0.7	1/16+0.7	1/32+0.7	1/64+0.7	1/128+0.7

8.2 Adjusting the Zoom Level



To adjust the zoom level, press [NEXT] until the selection indicator ▶ is pointing to the zoom value (i.e., the right figure in the centre row). Press [+] to increase or [−] to decrease the zoom level.

The zoom levels available for adjustment are:

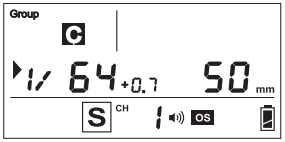
Zoom (mm)	24	28	35	50	70	80	105

9. Wireless Flash: Master and Slave Modes M S

With a built-in RF (Radio Frequency) module, the RF60 has the ability to communicate with other RF60 units wirelessly. To control and fire the RF60 wirelessly, set up one RF60 in Master mode and the other RF60 units in Slave mode.

9.1 Setting up the RF60 Slave

1. Make sure that the RF60 units that you want to control through the master flash are set to S mode (see Section 7.6).
2. Set the units to the same RF channel (see Section 7.7).

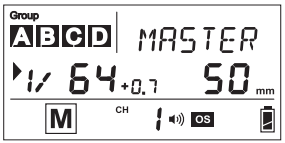


3. Assign RF60 Slave units to either group A, B, C, or D. Press GROUP to select the group for each RF60. Each press of the Group button in Slave mode will change the group in the sequence of A-B-C-D. The selected group will be shown on the group panel.

9.2 Commanding with the RF60 Master

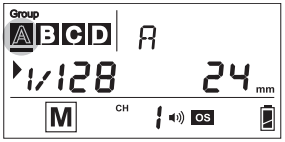
1. Set the on-camera RF60 to M mode by pressing MODE (see Section 7.6).
2. Set the RF60 Master to the same channel as the RF60 Slave units (see Section 7.7).
3. Check the group statuses on the group panel. Only activated group(s) will be shown as A, B, C, or D boxes.

Changing parameters of the Master flash

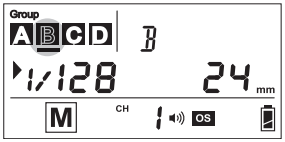


4. On the RF60 Master, you can change the power level and zoom level of the Master flash itself, and the RF60 Slave flashes in groups A, B, C, and D.
5. The default group is the Master RF60. In the display, the text area will show <MASTER>. No group is selected in the group panel, though it still shows the group activation status.

Changing parameters of a particular Slave group



6. To select a particular group for remote control, press GROUP and the group selection indicator will go to group A.



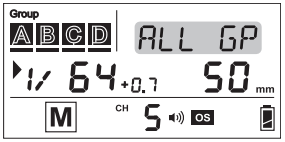
7. Press GROUP again to select the next group, i.e., group B. Each press of the Group button will select the next group in the following sequence:

   Master → A → B → C → D

8. Adjust the power level of the Master flash or of a particular group using the + or − button. Press NEXT to adjust the zoom level, also with the + or − button.

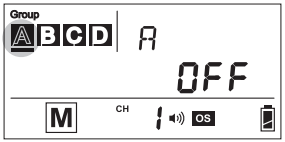
Note: The power and zoom level will only apply to the group being selected.

Changing parameters of all active groups



9. You may also change settings for all active groups at the same time. To select all groups, press and hold the GROUP button.
10. All selection indicators of the activated groups will be on and the text area will show <ALL GP>. The first activated group in the sequence of Master-A-B-C-D will be chosen as reference group.
11. Adjust the power and zoom levels as you would for a single group. The relative changes in both settings in the reference group, however, will apply to all active groups, including the Master flash. For example, by adjusting the power level of the reference group from 1/4 to 1/8 (i.e. a decrease of 1EV), the power levels of all the active groups will decrease by 1EV accordingly.
12. To exit from all group control, press GROUP button once.

Turn on and off a Slave group



13. If you wish to stop firing a particular group, turn the group off by selecting the group (see steps 2 and 3) and press and hold the NEXT button. The screen will show <OFF> in the centre row.

Note: The RF60 Master can also be turned off by pressing and holding the NEXT button in the Master group. Once turned off, the RF60 Master will not fire, but it will still command the RF60 Slaves, changing their settings and firing them accordingly.

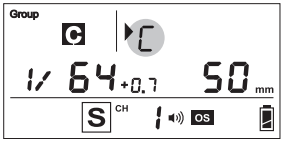
14. To turn on a group again, select the group (see step 2 and 3) and press and hold the NEXT button. The power level and zoom level last used for the group will be shown in the centre row again.
15. Press the shutter release button on the camera and the RF60 Master and Slave units in groups A, B, C, or D will fire at the power level and zoom level you have set in the RF60 Master.

10. Group Aliases

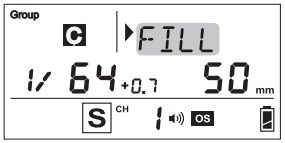
The RF60 comes with a list of pre-set group aliases to choose from for the particular slave groups according to the purpose of each. The chosen group alias will be shown in the text area next to the group panel. The group alias will display whenever the group is selected.

The group aliases available for selection are:

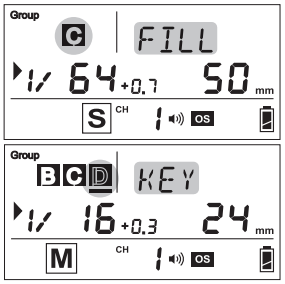
KEY — FILL — SPOT — RIM — HAIR — LEFT — RIGHT — BACK — FRONT



1. To set a group alias, select the group you would like to set an alias for, then press the GROUP and MENU buttons simultaneously.
2. The selection indicator and group letter will be shown in the text area. Press the + or − button to scroll through the available group aliases.



3. Press NEXT or MENU to confirm the alias and exit.
4. Repeat steps 1-3 to set aliases in all the Cactus RF60s. To prevent confusion, make sure that you have set the same alias for the same group in all RF60 units.

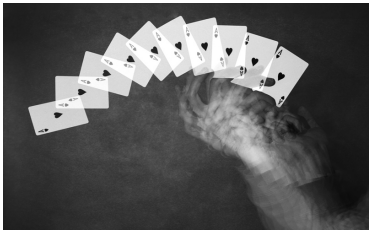


5. The alias of each group will appear in Slave mode or Master mode whenever the group is selected.

11. Advanced Operation

11.1 Multi Flash MULTI

In Multi mode, a rapid series of flashes is fired. It can be used to capture multiple images of a moving subject in a single frame.



In Multi mode, you can change the:
- Number of flashes in a series
- Flash frequency per second in Hz
- Power level
- Zoom level

The number of flashes represents the number of flashes firing in a series caused by a single trigger event. The flash frequency (Hz) represents the number of times the flash fires per second. Together with the flash series duration you have in mind, you can determine the appropriate value for the number of flashes and flash frequency.

$$\text{Flash series duration} = \text{No. of flashes} \times \frac{1}{\text{Flash Frequency(Hz)}}$$

For example, if you wish to fire a series of flashes that lasts for 0.5 second at a frequency of 10 times per second (i.e., 10 Hz), the number of flashes would be 5.

Similarly if you wish to fire 10 flashes at a frequency of 100Hz, the flash series would last for 0.1 second.

The flash series duration is usually equal to the shutter speed. However, it may be necessary to use a longer shutter speed that exceeds the flash series duration in order to expose for ambient light. Alternatively, it may be necessary to use a shorter shutter speed, and a slightly longer series duration as a safety margin.

Refer to the table below for the maximum number of flashes and flash frequencies supported by each power level.

Maximum Number of Multi Flashes

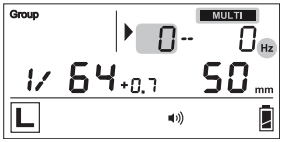
Power \ Hz	1	2	3	4	5	6-7	8-9
1/4	7	6	5	4	4	3	3
1/8	14	14	12	10	8	6	5
1/16	30	30	30	20	20	20	10
1/32	60	60	60	50	50	40	30
1/64	90	90	90	80	80	70	60
1/128	99	99	99	99	99	90	80

Power \ Hz	10	11	12-14	15-19	20-50	60-199
1/4	2	2	2	2	2	2
1/8	4	4	4	4	4	4
1/16	8	8	8	8	8	8
1/32	20	20	20	18	16	12
1/64	50	40	40	35	30	20
1/128	70	70	60	50	40	40

Notes:
1. Multi flash is most effective with a highly reflective subject against a dark background.
2. Multi flash is not supported at power level higher than 1/4.
3. The Multi flash may usefully be combined with a camera set to bulb mode.

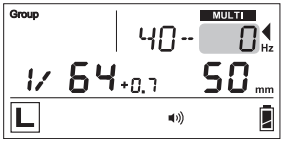
11.1.1 Multi Flash in Local Mode

Once you have determined the number and the frequency of flashes in a series, you can set up the flash in Multi mode.

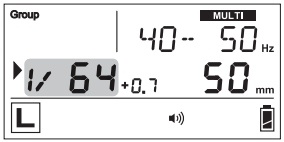


1. To enter Multi Mode, press MULTI / HSS once and the LCD screen will show **MULTI** and **Hz**.
2. Press NEXT until the selection indicator ▶ points to the number of flashes, i.e., the value before the hyphen.

3. Press ⊞ to increase or ⊟ to decrease the number of flashes.



4. Press NEXT until the selection indicator ▶ points to the frequency of flashes(Hz), i.e., the value after the hyphen.
5. Press ⊞ to increase or ⊟ to decrease the flash frequency per second.



6. To adjust the power level, press NEXT until the selection indicator ▶ points to the power level (see Section 8.1).
7. To adjust the zoom level, press NEXT until the selection indicator ▶ points to the zoom level (see Section 8.2).
8. To exit Multi mode, press MULTI / HSS twice to return to the main screen.

11.1.2 Multi Flash in Master and Slave Modes

An RF60 in Master mode will cause a Slave RF60 that uses the same RF channel to synchronize to Multi mode settings.

1. To enter Multi mode on the RF60 Master, press GROUP until you see <MASTER> displayed as the group name.
2. Press the MULTI / HSS button once. The LCD of the RF60 Master and Slave units will show **MULTI** and **Hz**. Both Master and Slave units are now in Multi Flash mode.
3. On the RF60 Master, follow the steps in 11.1.1 to adjust the number of flashes and flash frequency per second (Hz). The flash frequency will apply to both Master and Slave units in all active groups.
4. To exit Multi mode, press GROUP until you see <MASTER> in the text area, press the MULTI / HSS button twice to return to normal flash mode.

Notes:
1. When the number of flashes is larger than that supported by the power level of a particular slave group, it will be reduced accordingly for that particular slave (see table Maximum Number of Multi Flashes on page 28).

2. Since Multi mode flashes are not supported in power levels higher than 1/4, any Slave RF60 set at power levels higher than 1/4 will only flash once in Multi mode.
3. Multi mode and HSS Sympathy mode (see Section 11.2) are mutually exclusive options. Pressing the MULTI / HSS button changes the flash modes in the following sequence:
   Normal Flash ⟶ Multi Flash ⟶ HSS Sympathy Flash
4. On the RF60 Master, the Multi mode flashes can only be configured in the Master group. The selection will apply to the RF60 Master and all RF60 Slaves in the active group(s).

11.2 HSS Sympathy Mode HSS

The HSS Sympathy mode of the RF60 is designed to support flash photography at shutter speeds beyond a camera's maximum sync speed.

To this end, the RF60 will fire flashes with an extended duration in order to produce even frame illumination at shutter speeds as high as 1/8000 second.

Tip:
HSS flash is commonly used outdoor, especially in sunlight. The faster shutter speed supported by HSS flash allows you to use a wider aperture

to achieve shallower depth of field while maintaining correct exposure.

Characteristics of HSS Sympathy Flash

Compared with normal single-burst flash, the HSS sympathy flash provides continuous and constant illumination for the full duration between the first curtain opening and second curtain closing. The contribution of HSS sympathy flash to the exposure of the image is therefore different to that of a normal flash:

1. The flash output power in HSS Sympathy mode is different from that of a normal flash. To compensate 1 EV exposure loss in your camera setting, you need to increase the power level of a HSS sympathy flash by 2 EVs. Check the GN table below for comparison:

Power Level	GN (meter) at 105mm, ISO 100	
	Normal Flash	HSS Sympathy
1/1	56	28
1/2	40	23
1/4	28	20
1/8	20	17
1/16	14	14
1/32	10	12
1/64	7	10
1/128	5	8

2. The continuous light output in HSS sympathy mode does not freeze a moving object as a normal flash would do. Instead, an HSS sympathy flash will cause motion blur, much like a continuous light source would. In order to freeze motion using the HSS sympathy mode, you need to use high shutter speeds.
3. Increasing the shutter speed in HSS sympathy mode implies that the contribution of the flash decreases accordingly. Whenever changing the shutter speed, you also need to adjust the flash power level if you want to maintain the same contribution of the flash.

Using the RF60 in HSS Sympathy Mode

To use RF60 in HSS sympathy mode, you need a TTL flash with HSS / Auto FP capability.

1. Mount the TTL flash on the camera's hot shoe.
2. Switch the RF60 Master to HSS sympathy mode by pressing the MULTI / HSS button twice. The centre row of the LCD display will show **HSS**. This will automatically turn on the optical slave trigger in S1 (the mode in which the flash is triggered by the first pre-flash, see Section 11.3). Meanwhile, all RF60 Slave unit(s) in activated group(s) will turn into HSS sympathy mode automatically.
3. Position the RF60 Master with its optical sensor facing the TTL flash head.
4. Take a test shot by pressing the camera's shutter release button.
5. If the frame is not evenly illuminated from top to bottom, set the delay timer (see Section 11.4) of the RF60 Master to 10ms and then 15ms, 20ms, etc, until the flash fully fills up the frame. The optimum delay time that works with a high shutter speed should be within the range of 10ms to 100ms.

Setting the Delay Time for HSS Sympathy Mode

Consider the following when setting the delay time for the HSS sympathy mode:

- **Flash mode on TTL flash:** if the TTL flash is set to M (Manual) mode, the delay time should be within the range of 0-10ms. If the TTL flash is set to TTL mode, you would have to set a delay time at 55-100ms, depending on the camera brand and shooting aperture (F-number).
- **Camera brand:** The following delay time ranges are suggested for different camera systems:

Camera brand	Suggested delay time
Canon	52-64 ms
Nikon	55-65 ms
Sony	90-100 ms
Olympus/Panasonic	65-75 ms
Pentax	75-82 ms

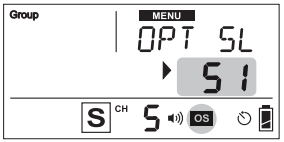
- F-number: The higher the f-number, the longer the delay time within the range of the particular camera system.
- Dark Band Position: When you see a dark band at the top of the image, increase the delay time. When the dark band appears at the bottom, decrease the delay time.

11.3 Optical Trigger OS

Optical trigger can act as an alternative trigger mechanism from the radio signal. For instance, it is very useful in capturing pre-flash signals that are being emitted earlier than the flash sync. Setting the pre-flash triggered optical trigger with the delay timer (see Section 11.4) can be used to set the exact time for the flash to start firing.

Two optical trigger modes S1 and S2 are available for selection:

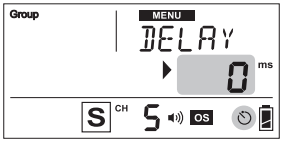
S1 (FIRST): Triggering on the first pre-flash, or on the main flash if there is no pre-flash.
S2 (MAIN): Ignoring pre-flashes and triggering on the main flash.



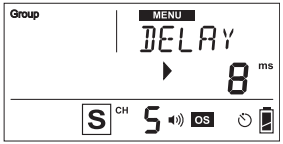
1. To turn on the optical trigger, press [MENU] then press the [NEXT] button until the text area shows <OPT SL> (short form for optical slave). Use the [+] and [−] buttons to select S1 (FIRST) or S2 (MAIN) in the selection area. Press [NEXT] or [MENU] to confirm.
2. The optical slave indicator **OS** will show in the status bar of the LCD screen whenever any one of the optical trigger modes has been turned on.
3. To turn off the optical trigger, press the [MENU] button and then the [NEXT] buttons until the text area shows <OPT SL>. Use the [+] or [−] button to choose <OFF>. Press [MENU] or [NEXT] to confirm.

11.4 Delay Timer

Every RF60 is equipped with a delay timer that can be configured in either Master or Slave mode. The delay timer delays the trigger response for the time period set. If you wish to fire the flash a bit later than the first curtain sync to create a different lighting effect (e.g. to achieve a second curtain sync), delay timer is helpful for your creation.



1. To set the delay timer, press MENU then press the NEXT button until <DELAY> is displayed and the selection indicator ▶ points at the value in ms.

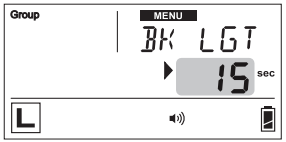


2. Use the + or − button to set the delay timer in milliseconds (ms) which is equal to 1/1000 second. You may set a delay time from 1 ms to 999 ms, i.e., close to 1 second.
3. Pressing and holding the + or − button will automatically speed up the key effect and make faster changes. Pressing and holding NEXT will reset the delay time to 0.
4. The delay timer indicator will show on the main screen status bar whenever a delay timer has been set.
5. To turn off the delay timer, follow step 1-3 to set the delay time to 0. The delay timer indicator will then disappear from the status bar on the main screen.

12. Personalizing the RF60

12.1 LCD Backlight

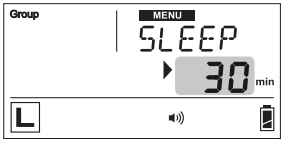
The LCD backlight of the RF60 turns on whenever any button is pressed. In order to conserve energy, there is a timer setting that automatically turns off the backlight.



1. To configure the backlight duration, press MENU, and press NEXT until the text area shows <BK LGT>. Then use the + or − buttons to choose from OFF, 5 sec, 15 sec, or ON.
2. The option <ON> will instruct the LCD to be on constantly.
3. Press NEXT to confirm and configure other items, or press MENU to confirm and leave.

12.2 Sleep Timer

To conserve energy when you forget to switch off the RF60 after use, the sleep timer will switch the RF60 into sleep mode after a specified period.



1. To configure the sleep timer, press MENU, and press NEXT a few times until the text area shows <SLEEP>. Then use the ⊞ or ⊟ buttons to choose from OFF, 3 min, 5min, 15 min, 30min, or 60 min.
2. The option <OFF> will deactivate the sleep mode.
3. Press NEXT to confirm and configure other items, or press MENU to confirm and leave.
4. To wake up RF60 from sleep mode, press any button once.

Note: Wireless triggering will not wake up RF60 Slave units remotely.

12.3 Quick Flash

The quick flash option enables firing the RF60 even though the flash capacitor is not fully charged. However, the flash output may be lower than specified on the RF60 menu.

Enable the quick flash option when speed is more important than the accuracy of power output. Disable quick flash option when accuracy is your primary concern.

1. To enable or disable the quick flash option, press MENU, and then NEXT until the text area shows <QCK FL>. Then use the ⊞ or ⊟ buttons to choose OFF and ON.
2. Press NEXT to confirm and configure other items, or press MENU to confirm and return to the main screen.

12.4 Beep Feedback

In addition to the flash ready indicator, the built-in buzzer of the RF60 can also notify you when the flash is ready according to your custom settings. Choose from the following options to best fit your shooting requirements:

OFF
RF60 does not beep in any circumstance.

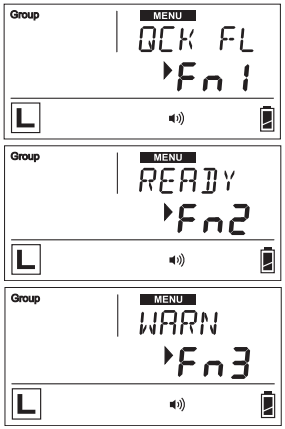
Fn1 (QCK FL): Quick Flash*
RF60 beeps when the flash is ready to emit light, albeit not yet at the specified level.

Fn2 (READY): Full Charge
RF60 beeps when the flash is ready to fire at the specified level.

Fn3 (WARN): Insufficient Power Warning*
RF60 beeps only when the flash has

fired a quick flash with a power level lower than the selected level.

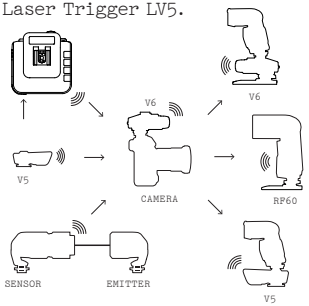
*Both Fn1 and Fn3 are only available for selection when the Quick Flash has been enabled (see Section 12.3).



1. To configure the beep option, press MENU, and press NEXT until the text area shows <BEEP>.Then use the + or − buttons to choose from OFF, Fn1 (QCK FL), Fn2 (READY) or Fn3 (WARN).
2. When choosing the options with the + or − buttons, the abbreviation for each option will be shown in the text area.
3. Press NEXT to confirm and configure other items, or press MENU to confirm and leave.
4. The beep indicator will appear in the status bar whenever Fn1, Fn2, or Fn3 is selected.

13. Working with Cactus Triggers

The RF60 is compatible with Cactus Wireless Flash Transceivers V6, V5, and Laser Trigger LV5.



13.1 Cactus V6

With the group function, the Cactus V6 transceiver and RF60 flash can trigger and command each other, in either Master or Slave mode.

13.1.1 RF60 as Slave

With a built-in Cactus V6 RF module, the Cactus RF60 can be remotely commanded and triggered by the V6 TX.

Note: Cactus V6 can specify up to 1/10 EV stop and communicate it with the RF60, however the RF60 would only display the nearest 1/3 EV stop.

You may combine the RF60 with other V6-compatible TTL flashes to form a manual flash control system. For example, assign a RF60 to group A, Canon 580EX (with a V6 RX) to group B, Nikon SB-900 (with another V6 RX) to group C. The V6 TX will be able to trigger them all and set their power levels in either relative or absolute power mode.

13.1.2 RF60 as Master

Users may assign the RF60 as master on the camera's hot shoe and let it trigger and command other RF60 Slave and V6 RX units. While the RF60 Master can control the power level and zoom level of the RF60 Slave, zoom control is not supported when working with V6 RX units.

Check the table below for the features supported in each pairing option:

TX(Master)	RX(Slave)	Note
V6	RF60	√ Triggering Slaves (RX) in 4 groups. √ Changing the power level of Slaves (RX) in 4 groups. √ Power levels adjustable from 1/128 to 1/1 full power, in the power ratio of 1/10 EV, 1/3 EV, 1/2 EV, or 1 EV (although the RF60 will only display the nearest 1/3 stop). X Changing the zoom level of RF60.

TX(Master)	RX(Slave)	Note
RF60	V6	√ Triggering Slaves (RX) in 4 groups. √ Changing the power level of Slaves (RX) in 4 groups. √ Power levels adjustable from 1/128 to 1/1 full power, with 0.3 and 0.7 increments between major power levels (in 1/3 EV power ratio). X Changing the zoom level of a flash on v6. X Changing in power ratios of 1/10EV, 1/2EV and 1EV.

13.2 Cactus V5, LV5

The Cactus RF60 can work in pairs with the Cactus V5 or LV5. They all share the same 2.4GHz, 16-channel platform.

Since the V5 and LV5 do not support groups and remote power control, the RF60 Master will trigger all V5s, independent of which group it considers active. Similarly, both the V5 and LV5 will trigger any RF60 slave, independent of what group it has been assigned to.

14. External Power

The external power source provides faster recycling times and more flash counts per battery cycle. Use the Cactus External Battery Pack EP-1 (optional) to extend the capability of the RF60:

	Charging time after a full power flash	Number of full power flashes supported
With 4x AA alkaline battery	5s	100
With Cactus External Battery Pack EP-1	2s	200

For instructions on how to power the RF60 with the External Battery Pack EP-1, see the user manual of EP-1.

15. Forming the Capacitor

When your flash is new or when it has not been used for a certain period of time, the capacitor may have lost its full potential to store electricity. When this occurs, you can 'form' the capacitor as follows:

1. Switch on the RF60 in Local mode with fresh batteries.
2. Adjust the flash to full power.
3. Allow the ready light to glow 15 to 20 seconds first.
4. Fire the flash using the TEST button.
5. Repeat steps 3-4. After a sequence of 5 flashes, your capacitor will be formed and work as normal.

16. USB Connection

The USB port of the RF60 is designed for firmware updates. To undergo a firmware update, switch off the RF60 and remove the batteries inside. Connect it to a computer via Cactus mini-USB cable MU-1 (optional) or a compatible USB-to-mini-USB cable. The firmware update program will then recognize the connected RF60 and start the upgrade. Please visit www.cactus-image.com/rf60.html for more information.

> Caution:
> Do not connect the RF60 to any AC power supply through the USB port.

17. Optional Accessories

1. Cactus Wireless Flash Transceiver V6
2. Cactus Wireless Flash Transceiver V5
3. Cactus Wireless Laser Trigger LV5
4. Cactus 60cm Foldable Soft Box CB-60
5. Cactus Diffuser Cap DC-60
6. Cactus Mini USB cable MU-1
7. Cactus External Battery Pack EP-1
8. Cactus PC Sync Cable CA-200
9. Cactus 3.5mm Plug Cable with 6.35mm Plug Adapter CA-360

18. Troubleshooting

Before reading this section, ensure that the Cactus RF60 has been set up correctly (follow the instructions in Sections 7-9 of this manual).

If the problem persists after completing the troubleshooting steps, contact your seller directly for further assistance.

1. Flash capacitor not charging		
Symptom	Possible Cause	Solution
No Flash Ready Signal	Batteries are installed in wrong direction	Install batteries in the correct direction
	Batteries are nearly depleted or have already been used up	Replace them with a new set of AA batteries
Temperature warning signal appears in LCD screen	Too many flashes have been fired in a short interval	Allow the flash to rest for at least 15 minutes

2. Flash power turns off by itself		
Symptom	Possible Cause	Solution
LCD turns off	Sleep timer is activated	- Press any button on the RF60 once to wake it up from sleep mode - Check the sleep timer configuration in the Menu and revise it (see Section 12.2)

3. Local or Master Flash does not fire		
Symptom	Possible Cause	Solution
Flash Ready LED blinks or stays on, but the flash does not fire	Flash is not attached securely to camera	Attach the flash's hot shoe securely to the camera
	Electrical contacts of the flash or camera are dirty	Clean the contacts

4. Slave Flash does not fire		
Symptom	Possible Cause	Solution
Flash Ready LED blinks or stays on, but the flash does not fire	Channel mismatch	Set Slave flash to the same channel as the Master flash
	Group mismatch	Make sure the group assigned to the Slave flash has been activated on the Master flash
	Background radio interference	- Set all units to another channel - Change setup location as interference may come from other equipment in the surrounding area
	Master and Slave flashes are placed too close to each other	Place the Master and Slave flashes at least 20cm apart and retry
	Beyond 200m effective range	- Make sure Master and Slave flashes are placed within 100m (328 ft) of each other Note: The effective range of 200m (656 ft) may not be achieved in the presence of radio interference

5. Flash does not fire in sync with camera		
Symptom	Possible Cause	Solution
Black frame appears in pictures or frame is only partially illuminated	Shutter speed is faster than the camera's x-sync limitation	- Adjust the camera's shutter speed to the maximum supported x-sync speed - Set up the RF60 in HSS Sympathy mode (see Section 11.3)
	Delay timer has been set incorrectly	Turn off the delay timer or adjust the delay timer to correct sync time

6. Flash misfires (Unexpected flash firing)		
Symptom	Possible Cause	Solution
Local or Master flash misfires	Poor hot shoe connection	- Adjust tightness of hot shoe contact - Clean the RF60's hot shoe contact with a clean cloth
Slave flash misfires	Background radio interference	- Set all units to another channel - Change setup location as interference may come from other equipment in the surrounding area
	Optical trigger has been switched on and triggered by unexpected ambient light	Switch off the optical trigger, as it may not work in the environment

7. Flash power lower than specified		
Symptom	Possible Cause	Solution
Insufficient Power Warning beeps (if enabled)	Flash fires when it is not fully charged	- Turn off Quick Flash - Allow the flash to recharge fully
Ready Signal takes longer than usual to turn on	Batteries are nearly depleted or have already been used up	Replace them with a new set of AA batteries

19.Notices

NOTICES FOR CUSTOMERS IN THE U.S.A.

Federal Communications Commission (FCC) Radio Frequency Interference Statements:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

HARVEST ONE LIMITED AND THE MANUFACTURER OF THIS WIRELESS FLASH IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER AUTHORITY TO OPERATE THE EQUIPMENT.

FC Cactus RF60

FCC ID: VAAFLARF60
MADE IN CHINA
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

R&TTE Declaration of Conformity (DOC)

We, Harvest One Limited, 9D On Shing Industrial Building, 2-16 Wo Liu Hang Road, Fo Tan, Hong Kong, declare under our own responsibility that the product:
Cactus Wireless Flash RF60
is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).

CE

This product Cactus Wireless Flash RF60 is in conformity with the provisions of EU Council Directive: 1999/5/EC.

The crossed-out wheeled bin means that within the European Union the product must be disposed separately at the end of product cycle. Do not dispose this product with other municipal waste.

20. Warranty

The limited warranty set forth below is given by Harvest One Limited with respect to the Cactus brand Wireless Flash purchased with this limited warranty.

Your Cactus Wireless Flash RF60 or other contents, when delivered to you in new condition in its original container, is warranted against defects in materials or workmanship as follows: for a period of one (1) year from the date of original purchase, defective parts or a defective Wireless Flash returned to our authorized dealers, as applicable, and proven to be defective upon inspection, will be repaired with new or comparable rebuilt parts or exchanged for a new Wireless

Flash as determined by Harvest One Limited or authorized dealers.

This limited warranty shall only apply if the Wireless Flash is used in conjunction with compatible camera and flash equipment, as to which items, Harvest One Limited, shall have no responsibility.

This limited warranty covers all defects encountered in normal use of the Wireless Flash, and does not apply in any of the following cases:

(a) Loss of or damage to the Wireless Flash due to abuse, mishandling, improper packaging by you, alteration, accidents, electrical current fluctuations.
(b) Failure to follow operating, maintenance, or environmental instructions prescribed in Cactus user's manual.
(c) It is serviced by someone other than Harvest One Limited or authorized dealers.
(d) Without limiting the foregoing, water damage, sand/corrosion damage, battery leakage, dropping the flash, scratches, abrasions or damage to the body, or damage to the hot shoe or PC cables, will be presumed to have resulted from misuse, abuse, or failure to operate the Wireless Flash as described in the operating instructions.

NO IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, APPLIES TO THE WIRELESS FLASH AFTER THE APPLICABLE PERIOD OF THE EXPRESS LIMITED WARRANTY STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON OR ENTITY WITH RESPECT TO THE WIRELESS FLASH SHALL BIND HARVEST ONE LIMITED. HARVEST ONE LIMITED SHALL NOT BE LIABLE FOR LOSS OF REVENUES OR PROFITS, INCONVENIENCE, EXPENSE FOR SUBSTITUTE EQUIPMENT OR SERVICE, STORAGE CHARGES, LOSS OR CORRUPTION OF DATA OR ANY OTHER SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE OR MISUSE OF, OR

INABILITY TO USE, THE WIRELESS FLASH, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF HARVEST ONE LIMITED HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THERE BE RECOVERY OF ANY KIND AGAINST HARVEST ONE LIMITED GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE CACTUS WIRELESS FLASH SOLD BY HARVEST ONE LIMITED OR ITS AUTHORIZED DEALERS AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE, OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE OR MISUSE OF, OR INABILITY TO USE, THE CACTUS WIRELESS FLASH NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF HARVEST ONE LIMITED. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF HARVEST ONE LIMITED, OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT, AND STATES YOUR EXCLUSIVE REMEDY.

Corporate Office:

HARVEST ONE LIMITED
9D ON SHING IND. BLDG.,
2-16 WO LIU HANG ROAD,
FO TAN, HONG KONG

PLEASE CONTACT YOUR LOCAL DEALER FOR CUSTOMER SERVICE.

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Cactus

www.cactus-image.com